



PROGRAMME FOR INTERNATIONAL STUDENT ASSESSMENT (PISA) RESULTS FROM PISA 2018

The Programme for International Student Assessment (PISA) is a triennial survey of 15-year-old students around the world that assesses the extent to which they have acquired the key knowledge and skills essential for full participation in society. In parallel, PISA also looks into the policies and practices used in schools and school systems, and their relationship with education outcomes more generally, through background questionnaires. *PISA 2018 Volume V: Effective Policies, Successful Schools* presents these results.

As PISA consistently finds, after a certain threshold is reached, it's not how much money a country invests in its education system that makes the greatest difference, but rather how that money is allocated. When governments have to make tough choices about how to spend their money most effectively, especially in times of economic challenges, they can see – through PISA – which subgroup of students (or schools) may be most affected by a crisis, and which policies and practices have the strongest associations with performance, equity in education and student well-being. They can then make the necessary trade-offs and spending decisions, to meet the specific needs of their students, based on hard data.

Japan

Key findings

- Amongst countries and economies whose cumulative expenditure was greater than USD 50 000 per student, which include Japan, higher expenditure on education was not significantly associated with higher scores in the PISA reading test. While cumulative expenditure per student from the age of 6 to 15 is around USD 100 000 in Canada, Japan and the Netherlands, students in Canada scored higher than Japan in reading and students in the Netherlands scored lower than Japan.
- Almost all 15-year-old students in Japan, including both disadvantaged and advantaged students, had attended pre-primary education for at least one year.
- In Japan, only one in four students attends a school with an effective online learning platform, while on average across OECD countries, more than one in two students attend such schools. Furthermore, in Japan only 27% of students were in schools where teachers did not have the necessary technical and pedagogical skills to integrate digital devices in instruction, while on average across OECD countries, 65% of students were in such schools.
- In Japan, socio-economic disparities in learning time in regular school lessons were observed in language-of-instruction, mathematics, science and foreign language lessons, with the biggest gap in foreign language lessons. The disparities are some of the largest amongst OECD countries: advantaged students spent 62 minutes more per week in foreign language lessons than disadvantaged students.
- Before accounting for students' and schools' socio-economic profile, students in vocational programmes in Japan were less likely than students in general programmes to believe that their intelligence is something they can change.

Over 99% of advantaged and disadvantaged students in Japan had attended pre-primary education for at one year

- In Japan, over 99% of students had attended pre-primary education at least one year and 95% of students had attended for at least two years. On average across OECD countries, 94% of students had attended pre-primary education at least one year and 80% of students had attended for at least two years (Table V.B1.2.1).
- In Japan, there is no difference in pre-primary attendance between advantaged and disadvantaged students: 0.7% of advantaged students compared with 0.2% of disadvantaged students had not attended or had attended pre-primary education for less than one year. In contrast, on average across OECD countries, 3% of advantaged and 10% of disadvantaged students had not attended or had attended pre-primary education for less than one year (Table V.B1.2.2).
- On average across OECD countries, students who had attended pre-primary education for at least two years but less than three years scored 20 points higher (491 points) in reading than students who had attended for at least one year but less than two years (471 points) (Table V.B1.2.4).
- Similarly, in Japan students who had attended pre-primary school for at least two years but less than three years outperformed those students who had attended for at least one year but less than two years by 32 score points (512 vs. 480).

Early tracking does not translate into a more equitable education system

- Selecting students into different programmes at an earlier age was correlated with less equity in reading performance, even after accounting for per capita GDP (Figure V.3.9). On average across OECD countries, students are selected into different programmes just over the age of 14, while in Japan, students are 15 years old at the age of first selection.
- Some 23% of students in disadvantaged schools were enrolled in a vocational programme, whereas only 2% of students in advantaged schools were, on average across OECD countries. In Japan: 55% of students in disadvantaged schools were enrolled in a vocational programme compared with 0% of students in advantaged schools (Table V.B1.3.2).
- In Japan, students in general (academic) programmes scored similarly in reading as those in vocational programmes, after accounting for students' and schools' socio-economic profile, compared with the OECD average difference of 28 points in favour of students in general programmes (Table V.B1.3.2). At the system level, across OECD countries, school systems with larger shares of students in general programmes generally showed greater equity in reading performance, even after accounting for per capita GDP.
- In Japan, students in general programmes were more likely to hold a growth mindset (i.e. they believe that their intelligence is something they can change) than students in vocational programmes. However, after accounting for students' and schools' socio-economic profile, there was no difference between the two groups of students in the likelihood of endorsing a growth mindset. In contrast, across OECD countries, students in general programmes were 12% more likely than students in vocational programmes to endorse a growth mindset, even after accounting for students' and schools' socio-economic profile (Figure V.2.14).

In 2018, principals in Japan reported shortages of education staff similar to those reported by their counterparts in 2015

- On average across OECD countries, principals reported fewer shortages of education staff in 2018 than in 2015. In contrast, in Japan, principals' reports were similar in 2015 and 2018 (Table V.B1.4.2).

- According to principals' reports, a lack of teaching staff is the biggest hindrance to learning in Japan, amongst factors related to teaching and assistance staff, while a lack of assistance staff is the biggest hindrance to learning on average across OECD countries (Figure V.4.3).
- In Japan, perceived shortages of education staff were not related to student achievement in reading, after accounting for students' and schools' socio-economic profile. Overall, in 17 countries and economies, students attending schools with more shortages scored lower in reading than students in schools with fewer shortages of staff, even after accounting for students' and schools' socio-economic profile (Table V.B1.4.1 and Figure V.4.2).

In Japan, only 24% of students attended a school with an effective online learning platform, while on average across OECD countries, 54% of students attended such a school

- An effective, online learning platform – especially when remote learning becomes education's lifeline – has become a must-have if countries are to make good use of whatever computer hardware they make available to their students. Moreover, such an online platform is related to equity in student performance in all core subjects, on average, across all countries and economies, before and after accounting for per capita GDP (Table V.B1.5.21).
- In Japan only 27% of students were in schools whose principals reported that their teachers did not have the necessary technical and pedagogical skills to integrate digital devices in instruction, while on average across OECD countries, 65% of students were in such schools (Table V.B1.5.16).
- In Japan, more computers are available per student in disadvantaged schools than in advantaged schools, but portable computers, including laptops and tablets, were 23 percentage points more prevalent in advantaged schools (Tables V.B1.5.6 and V.B1.5.8). The ability to provide remote education for all students depends crucially on the availability of digital devices at home. Data show that the distribution of computers for schoolwork at home is not equitable in almost all countries and economies participated in PISA 2018. In Japan, 73% of students in advantaged schools responded that they had a computer for schoolwork at home, while only 50% of students in disadvantaged schools responded so (Table V.B1.9.2).
- On average across OECD countries and in 12 countries and economies, students attending schools whose principal reported fewer shortages of material resources scored higher in reading. But in Japan, there is no performance difference between these two groups of students, after accounting for students' and schools' socio-economic profile (Table V.B1.5.2).
- In countries and economies with higher mean performance in reading, there tended to be smaller differences in material resources between advantaged and disadvantaged schools; in some cases, disadvantaged schools tended to have more material resources than advantaged schools. In Japan, students scored above the OECD average in reading by 17 score points, while differences in material resources between advantaged and disadvantaged schools, according to principals' reports, were similar to the OECD average (Figure V.5.11 and Table V.B1.5.2).

In Japan, advantaged students spent more time in regular school lessons than disadvantaged students

- On average across OECD countries, performance in reading improved with each additional hour of language-of-instruction lessons per week, up to three hours. However, this positive association between learning time in regular language-of-instruction lessons and reading performance weakened amongst students who spent more than three hours per week in these lessons. In Japan, performance

in reading improved with each additional hour of language-of-instruction lessons per week, up to five hours (Table V.B1.6.5).

- Consistent with the average hump-shaped pattern observed across OECD countries, system level analyses show that education systems where more students tended to spend extremely short or long hours in regular lessons tended to score lower in reading (Figures V.6.13 and V.6.14).
- On average across OECD countries, socio-economic disparities in learning time in regular school lessons are most prominent in foreign language lessons and science lessons. Equal access to foreign language learning is related to greater equity across OECD countries (Figure V.6.15).
- In Japan, socio-economic disparities in learning time in regular school lessons were observed not only in foreign language and science lessons, but also in language-of-instruction and mathematics lessons. The disparities are some of the largest amongst OECD countries (Table V.B1.6.3).
- Disadvantaged students in Japan reported spending 3.5 hours per week in foreign language lessons, compared with 3.3 hours on average across OECD countries, while advantaged students reported spending 4.6 hours per week, compared with 4 hours, on average across OECD countries. This means that, in Japan, advantaged students spent 62 minutes more per week in foreign language lessons than disadvantaged students did (Table V.B1.6.3).

In Japan, 3 in 10 students attended a private school, but this does not necessarily translate into better performance

- In 53 out of 66 countries and economies with available data, including Japan, the average socio-economic status of students who attended private schools was more advantaged than that of students who attended public schools (Table V.B1.7.2).
- In Japan, students attending public schools scored 22 points higher in reading than students attending private schools. After accounting for students' and schools' socio-economic profile, students attending public schools outperformed students attending private schools by 57 points. This is above the OECD average, where students attending public schools scored 14 points higher than students in private schools, after accounting for students' socio-economic status (Tables V.B1.7.4).

Various quality assurance and improvement actions at school are related to greater equity in education

- Those countries/economies that show greater equity in education tended to use student assessments more frequently to inform parents about their child's progress and identify aspects of instruction/curriculum that could be improved. For every 10 percentage-point increase in the share of parents who discussed their child's progress on the teachers' initiative, the average reading score improved by 10 points, on average across the 74 countries and economies with available data. These results imply that sharing the results of student assessments and discussing with parents their child's progress may be an effective way for schools to be accountable for their students' learning.
- In Japan, 97% of students were in schools whose principal reported using student assessments to inform parents about their child's progress (95% on average across OECD countries), and 82% were in schools that use student assessments to identify aspects of instruction or the curriculum that could be improved (78% on average) (Table V.B1.8.1).
- Those countries/economies that show greater equity in education also tended to use written specifications for student performance based on the school's initiative, seek written feedback from students based on district or national policies, and have regular consultations on school improvement at least every six months, based on district or national policies.
- In Japan, 42% of students were in schools whose principals reported having written specifications for student performance on the school's initiative (34% on average across OECD countries), and 25% reported seeking written feedback from students based on district or national policies (12% on

average). Some 5% of students attended schools that have regular consultations on school improvement at least every six months based on district or national policies (11% on average) (Table V.B1.8.11).

Key features of PISA 2018

The content

- The PISA 2018 survey focused on reading, with mathematics, science and global competence as minor areas of assessment. PISA 2018 also included an assessment of young people's financial literacy, which was optional for countries and economies.

The students

- Some 600 000 students completed the assessment in 2018, representing about 32 million 15-year-olds in the schools of the 79 participating countries and economies. In Japan, 6 109 students completed the assessment, representing 1 078 921 15-year-old students (91% of the total population of 15-year-olds).

The assessment

- Computer-based tests were used in most countries, with assessments lasting a total of two hours. In reading, a multi-stage adaptive approach was applied in computer-based tests whereby students were assigned a block of test items based on their performance in preceding blocks.
- Test items were a mixture of multiple-choice questions and questions requiring students to construct their own responses. The items were organised into groups based on a passage of text describing a real-life situation. More than 15 hours of test items for reading, mathematics, science and global competence were covered, with different students taking different combinations of test items.
- Students also answered a background questionnaire, which took about 35 minutes to complete. The questionnaire sought information about the students themselves, their attitudes, dispositions and beliefs, their homes, and their school and learning experiences. School principals completed a questionnaire that covered school management and organisation, and the learning environment.
- Some countries/economies also distributed additional questionnaires to elicit more information. These included: in 19 countries/economies, a questionnaire for teachers asking about themselves and their teaching practices; and in 17 countries/economies, a questionnaire for parents asking them to provide information about their perceptions of and involvement in their child's school and learning.
- Countries/economies could also choose to distribute three other optional questionnaires for students: 52 countries/economies distributed a questionnaire about students' familiarity with computers; 32 countries/economies distributed a questionnaire about students' expectations for further education; and 9 countries/economies distributed a questionnaire, developed for PISA 2018, about students' well-being.

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Map of PISA countries and economies



OECD member countries

Australia	Lithuania
Austria	Luxembourg
Belgium	Mexico
Canada	Netherlands
Chile	New Zealand
Colombia	Norway
Czech Republic	Poland
Denmark	Portugal
Estonia	Slovak Republic
Finland	Slovenia
France	Spain
Germany	Sweden
Greece	Switzerland
Hungary	Turkey
Iceland	United Kingdom
Ireland	United States*
Israel	
Italy	
Japan	
Korea	
Latvia	

Partner countries and economies in PISA 2018

Albania	Malaysia
Argentina	Malta
Baku (Azerbaijan)	Republic of Moldova
Belarus	Montenegro
Bosnia and Herzegovina	Morocco
Brazil	Republic of North Macedonia
Brunei Darussalam	Panama
B-S-J-Z (China)**	Peru
Bulgaria	Philippines
Costa Rica	Qatar
Croatia	Romania
Cyprus ¹	Russian Federation
Dominican Republic	Saudi Arabia
Georgia	Serbia
Hong Kong (China)	Singapore
Indonesia	Chinese Taipei
Jordan	Thailand
Kazakhstan	Ukraine
Kosovo	United Arab Emirates
Lebanon	Uruguay
Macao (China)	Viet Nam

Partner countries and economies in previous cycles

Algeria
Azerbaijan
Guangdong (China)
Himachal Pradesh (India)
Kyrgyzstan
Liechtenstein
Mauritius
Miranda (Venezuela)
Tamil Nadu (India)
Trinidad and Tobago
Tunisia

* Puerto Rico participated in the PISA 2015 assessment (as an unincorporated territory of the United States).

** B-S-J-Z (China) refers to four PISA 2018 participating Chinese provinces/municipalities: Beijing, Shanghai, Jiangsu and Zhejiang. In PISA 2015, the four PISA participating Chinese provinces/municipalities were: Beijing, Shanghai, Jiangsu and Guangdong.

1. **Note by Turkey:** The information in this document with reference to "Cyprus" relates to the southern part of the Island. There is no single authority representing both Turkish and Greek Cypriot people on the Island. Turkey recognises the Turkish Republic of Northern Cyprus (TRNC). Until a lasting and equitable solution is found within the context of the United Nations, Turkey shall preserve its position concerning the "Cyprus issue".

Note by all the European Union Member States of the OECD and the European Union: The Republic of Cyprus is recognised by all members of the United Nations with the exception of Turkey. The information in this document relates to the area under the effective control of the Government of the Republic of Cyprus.

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Data can also be found on line by following the **StatLinks**  under the tables and charts in the publication.

Explore, compare and visualise more data and analysis using: <http://gpseducation.oecd.org/>.

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